

PATENT
W&B Ref. No. : INF 2003-US/PC
Atty. Dkt. No. INFN/WB0035

REMARKS

This is intended as a full and complete response to the Final Office Action dated May 9, 2006, having a shortened statutory period for response set to expire on August 9, 2006. Applicants submit this response to place the application in condition for allowance or in better form for appeal. Please reconsider the claims pending in the application for reasons discussed below.

Claims 11 and 14-24 are pending in the application. Claims 11 and 14-24 remain pending following entry of this response. Claims 1-10 and 12-13 have been canceled.

Claim Rejections - 35 U.S.C. § 112

Claims 11 and 14-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Specifically, the Examiner argues that the amended claim language "wherein the doped region is completely surrounded by the source/drain electrode except for a surface to contact the filling of the bit-line" is not reasonably described in the specification. Applicants respectfully traverse the rejection.

The first paragraph of 35 U.S.C. §112 of the United States Code states:

"The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention."

Applicants further note that both 35 U.S.C. §112 and the MPEP do not require a "word-for-word" recitation of the claim language in the specification. ("While there is no *in haec verba* requirement, newly added claim limitations must be supported in the specification through express, implicit, or inherent disclosure." MPEP §2163(1)(B)).

Applicants submit that the claim language "wherein the doped region is completely surrounding by the source/drain electrode except for a surface to contact the

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filling of the bit-line contact" is supported in the specification through express, implicit, or inherent disclosure.

For example, the "doped region" as claimed is disclosed in the specification as "the highly doped region 52" and as the "locally delimited contact layer 52." (Paragraph: 29, Line: 4). Furthermore, paragraph 26 of the specification describes "two n-doped diffusion regions 31...which define the source/drain electrodes." (Paragraph: 29, Lines: 5-6). Therefore, the "doped region" and the "source/drain electrode" are expressly disclosed in the specification.

The specification also explains that "a contact hole 50 (shown in Figure 1B) is produced above the source/drain electrode 31 in the insulator layer." (Paragraph 28, Line 2-3). As illustrated in Figure 1B-1E, the contact hole 50 is located only above the source/drain electrode 31. Furthermore, the "locally delimited contact layer 52" (e.g., the doped region) "is produced in the substrate surface in the contact hole 50." (Paragraph: 29, Lines: 1-2). The doped region 52 is produced by any of a variety of doping process. (Paragraphs: 29-30.) Because the contact hole in which the doped region is formed is only above the source/drain electrode 31, it is implicitly disclosed that the doped region 52 is "completely surrounded by the source drain electrode" as claimed. More specifically, Figure 1C clearly shows the doped region 52 formed in, and hence completely surrounded by, the source/drain electrode 31. Only the upper surface of the doped region remains exposed, as shown in Figure 1C.

The specification also expressly discloses "the doped region" having "a surface to contact the filling of the bit-line contact" as claimed. After the highly doped region 52 (e.g., the doped region) is produced at the bottom of the contact hole, a "liner layer 60 is deposited in the contact hole." (Paragraph: 31, Lines: 1-2). The process of depositing the liner layer 60 in the contact hole results in "sufficient bottom coverage in the contact hole." (Paragraph: 31, Lines: 3-4). Thus, the upper exposed surface of the highly doped region 52 in the contact hole 50, which is not surrounded by the source/drain electrode 31, is sufficiently covered by the liner layer. Later, in Paragraph 32, the contact hole is further filled with a metal or a metal alloy "[t]o produce an electrically

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conductive connection between a bit line and the diffusion region 31" (Paragraph 32, Lines: 1-4). Thus, the described connection between a bit line and the diffusion region is a "bit-line contact" as recited in the claims. Therefore, the "the doped region" has a "surface to contact the filling of the bit-line."

Thus, the specification sufficiently describes "wherein the doped region is completely surrounded by the source/drain electrode except for a surface to contact the filling of the bit-line." Therefore, Applicants believe that claims 11 and 14-24 do comply with the written description requirement of 35 U.S.C. §112, and allowance of the claims is respectfully requested.

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Conclusion

Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

If the Examiner believes any issues remain that prevent this application from going to issue, the Examiner is strongly encouraged to contact the undersigned attorney to discuss strategies for moving prosecution forward toward allowance.

Respectfully submitted, and
S-signed pursuant to 37 CFR 1.4,

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